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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,088	11/23/2005	Hiroyuki Ozaki	050605	3388
23850 7590 07/03/2008 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005				
EXAMINER				
LEE, RIP A				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/558,088

**Applicant(s)**

OZAKI ET AL.

**Examiner**

RIP A. LEE

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on April 23, 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) 14-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 22-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

This office action follows a request for continued examination (RCE) under 37 § C.F.R. 1.114, filed on April 23, 2008. Claims 1 and 7 were amended, claims 14-21 were withdrawn, and new claim 24 was added. Claims 1-13 and 22-24 are pending.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 24 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for modified polypropylene containing at least one hydrophilic functional group selected from OH, P(O)OH, COOH, NR<sub>2</sub>CN, SO<sub>3</sub>H, SO<sub>3</sub>M, COOM, and OCOR, does not reasonably provide enablement for the genera of hydrophilic functional groups such as -PO<sub>3</sub><sup>-</sup>, -NR<sub>3</sub><sup>+</sup>, and -(OC<sub>n</sub>H<sub>2n</sub>)<sub>m</sub>OH as recited in the claim. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or practice the invention commensurate in scope with these claims.

***Claim Rejections - 35 USC § 102 / USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-13 and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Koyama *et al.* (U.S. 5,382,634) in view of Okamoto *et al.* (JP 8-176374) and Hisada *et al.* (JP 5-59236).

Koyama *et al.* discloses terminal modified polypropylene in which the polypropylene is modified with hydrophilic functional groups OH and NR<sup>9</sup>R<sup>10</sup> (col. 1, lines 8-10, 35-59; see also

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examples 18, 19, and 24). The polymer of example 24 exhibits a racemic diad fraction of 0.787 (col. 20, line 61). Since polymers of the invention are terminal functionalized, they will exhibit a modification number of at least 1. Koyama *et al.* does not disclose preparation of an emulsion of modified polypropylene, nor does not disclose a particular end use for inventive polymers.

At the time of the instant invention, use of modified polyolefins was well established in the art. The prior art of Okamoto *et al.* teaches use of modified polypropylene in emulsion form having good storage stability as small dispersed particles. Modified polypropylene emulsions find use in preparation of film forming, *i.e.*, coating compositions (abstract). The prior art of Hisada *et al.* teaches preparation of modified polypropylene in emulsion form which is well suited for manufacture of coatings, inks, adhesives, and the like (abstract).

The combination of references would have suggested to one having ordinary skill in the art that polymers of Koyama *et al.*, although prepared in organic solvent, are well suited to be prepared in emulsion form, as shown in Okamoto *et al.* and Hisada *et al.* One skilled in the art would have found it obvious to prepare an emulsion since this form is versatile and useful for coatings applications, as well as for manufacture of a variety of materials such as inks and adhesives. Thus, it would have been obvious to one having ordinary skill in the art to make the invention of claims 1, 3, 7, 9, and 24 by preparing an emulsion of the polymer of Koyama *et al.*

Koyama *et al.* is silent with respect to the spectral and solubility properties of polymers, however, in view of the fact that the polymer is substantially the same as that described in the instant claims, that is, it is a polypropylene that exhibits a racemic diad fraction in the claimed range, and it contains at least 1 of the claimed hydrophilic groups per molecular chain, a reasonable basis exists to believe that it exhibits substantially the same spectral properties and the solubility values recited in the claims 2, 4-8, and 10-13. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

One having ordinary skill in the art would have found it obvious to make a coating formulation, adhesive, or ink, as recited in claims 22 and 23, using the polymer of Koyama *et al.* in emulsion form since the secondary references disclose these particular end uses for modified

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polypropylene emulsions. Thus, the skilled artisan would have expected emulsions of the polymer of Koyama *et al.* to work in a coating formulation with a reasonable expectation of success.

3. Claims 1-13 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita *et al.* (U.S. 5,252,677) in view of Woodhams (U.S. 4,442,243).

Tomita *et al.* discloses a method of making sulfonated polypropylenes in which the polypropylene has a racemic triad  $[rr]$  of at least 0.7 (claims 1-6). A racemic triad  $[rr]$  of 0.7 corresponds approximately to a racemic diad  $[r]$  of  $\sqrt{0.7} = 0.83$ . Since the functional group is introduced at the polymer terminus, there is at least one functional group per molecule.

The deficiency of Tomita *et al.* is that the reference discloses modified polypropylene having a racemic diad of approximately 0.83, while the present claims describe a modified polypropylene having a racemic diad of 0.82. It is apparent, however, that the instantly claimed amount of 0.83 and that taught by Tomita *et al.* are so close to each other that the fact pattern is similar to the one in *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) or *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) where, despite a slight difference in the ranges, the court held that such a difference did not “render the claims patentable,” or, alternatively, that “a *prima facie* case of obviousness exists where the claimed range and prior art range do not overlap, but are close enough so that one skilled in the art would have expected them to have the same properties.”

In light of the case law cited above, and given that there is only a slight microstructural, but not compositional, difference between the polymers exhibiting  $[r]$  of approximately 0.83, as disclosed by Tomita *et al.*, and the polymers exhibiting  $[r]$  of 0.82, recited in the present claims, and further, in light of the fact that no criticality is disclosed in the present invention with respect to amended upper limit of racemic diad of 0.82, it would have been obvious to one of ordinary skill in the art that the modified polypropylene having a racemic diad of 0.82 recited in the present claims is but an obvious variant of the modified polypropylene of the prior art which exhibits a racemic diad of approximately 0.83, and accordingly, one of ordinary skill in the art would have arrived at the claimed invention.

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Although the inventors suggest some end uses for the polymer, they do not disclose the end product in the form of an emulsion. Woodhams teaches use of sulfonated polypropylene polymer as a binding aid for mica/propylene composites (see discussion, column 3). One method of preparing such composites involves pretreatment of mica with an emulsion of the derivatized polypropylene. It would have been obvious to one having ordinary skill in the art to use the sulfonated polypropylene as a binding agent for making the composites of Woodhams and thereby arrive at the subject matter of the instant claims, and since this end use is disclosed in the prior art, one having ordinary skill in the art would have expected such an embodiment to work with a reasonable expectation of success.

In summary, the subject matter of claims 1, 3, 7, 9, and 22-24 are obvious over the combined references.

Tomita *et al.* is silent with respect to the spectral and solubility properties of polymers, however, in view of the fact that the polymer is substantially the same as that described in the instant claims, that is, it is a polypropylene that exhibits a racemic diad fraction in the claimed range, and it contains at least 1 of the claimed hydrophilic groups per molecular chain, a reasonable basis exists to believe that it exhibits substantially the same spectral properties and the solubility values recited in the claims 2, 4-8, and 10-13. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

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*Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-13 and 22-24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of Wakabayashi *et al.* (U.S. Patent No. 6,887,944) in view of Okamoto *et al.* (JP 8-176374) and Hisada *et al.* (JP 5-59236).

Both sets of claims are drawn to substantially the same modified polypropylene having racemic diad [*r*] in the range of 0.51-0.82. The difference between the sets of claims is that the present invention is drawn to an emulsion of modified polypropylene. The claims of the prior art are drawn to modified polypropylene only. However, the prior art teaches that the modified polypropylene of the invention find end use in paints, coatings, and adhesives (col. 14, lines 29-33). Modified polyolefins used in this fashion are in the form of emulsions as shown in the prior art of Okamoto and Hisada. It would have been obvious to one having ordinary skill in the art to use polymers of Wakabayashi *et al.* in the form of an emulsion and thereby arrive at the subject matter of the instant claims.

Another difference between the sets of claims is that the present claims recite a series of physical properties associated with the polymer whereas the claims of the prior art are silent with respect to these physical properties. However, in light of the fact that the polymers of both inventions are substantially the same, one of ordinary skill in the art would reasonably expect substantially the same materials will exhibit substantially the same properties.

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### ***Terminal Disclaimer***

6. The terminal disclaimer filed on April 23, 2008, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Wakabayashi *et al.* (U.S. 6,887,944) has been reviewed, but it has NOT been accepted. According to the internal notice, dated May 1, 2008, the terminal disclaimer was not accepted since the present attorney is "not of record." Terminal disclaimer will be accepted once this issue has been resolved.

### ***Response to Arguments***

7. The nonstatutory obviousness-type double patenting rejection over claims of Wakabayashi *et al.* (U.S. Patent No. 6,887,944) in view of Okamoto *et al.* (JP 8-176374) and Hisada *et al.* (JP 5-59236), set forth in the final office action dated January 24, 2008, has been withdrawn in view of claim amendments, and new grounds of rejection based on the same references have been presented in paragraph 5, *supra*.

The rejection of claims over Wakabayashi *et al.* (U.S. 6,887,944) in view of Okamoto *et al.* (JP 8-176374) and Hisada *et al.* (JP 5-59236) have been withdrawn. Wakabayashi *et al.* (U.S. 6,887,944) does not qualify as prior art; Applicant has furnished evidence that Wakabayashi *et al.* and the claimed invention were commonly owned at the time the claimed invention was made.

The rejection of claims over Tomita *et al.* (U.S. 5,252,677) in view of Woodhams (U.S. 4,442,243), set forth in the previous office action has been withdrawn. As indicated by Applicant, amended claims recite a racemic diad [r] range of 0.12 to 0.82, which lies just beyond the range of racemic triad [rr] range of at least 0.7, which would correspond to a racemic diad range of at least an approximate value of 0.83. However, new grounds of rejection have been presented in paragraph 3, *supra*, on the basis that the modified polypropylene having a racemic diad of 0.82 recited in the present claims is but an obvious variant of the modified polypropylene of the prior art which exhibits a racemic diad of approximately 0.83.

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The rejection of claims under 35 U.S.C. 112, 1<sup>st</sup> paragraph has been withdrawn in view of claim amendments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/  
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June 30, 2008